

- Hepatol, 2023, 29(2):230-241.
- [4] 国家卫生健康委办公厅. 原发性肝癌诊疗指南(2022 年版)[J]. 临床肝胆病杂志, 2022, 38(2):288-303.
- [5] Kang TW, Lim HK, Lee MW, et al. Perivascular versus nonperivascular small HCC treated with percutaneous RF ablation: retrospective comparison of long-term therapeutic outcomes[J]. Radiology, 2014, 270(3):888-899.
- [6] Laimer G, Schullian P, Jaschke N, et al. Minimal ablative margin (MAM) assessment with image fusion: an independent predictor for local tumor progression in hepatocellular carcinoma after stereotactic radiofrequency ablation[J]. Eur Radiol, 2020, 30(5):2463-2472.
- [7] Zhang X, Huang G, Ye J, et al. 3-D contrast-enhanced ultrasound fusion imaging: a new technique to evaluate the ablative margin of radiofrequency ablation for hepatocellular carcinoma[J]. Ultrasound Med Biol, 2019, 45(8):1933-1943.
- [8] Dong Y, Wang WP, Mao F, et al. Application of imaging fusion combining contrast-enhanced ultrasound and magnetic resonance imaging in detection of hepatic cellular carcinomas undetectable by conventional ultrasound[J]. J Gastroenterol Hepatol, 2016, 31(4):822-828.
- [9] Ma QP, Xu EJ, Zeng QJ, et al. Intraoperative computed tomography/magnetic resonance-contrast-enhanced ultrasound fusion imaging improved thermal ablation effect of hepatocellular carcinoma: comparison with conventional ultrasound[J]. Hepatol Res, 2019, 49(7):799-809.
- [10] Huang Q, Zeng Q, Long Y, et al. Fusion imaging techniques and contrast-enhanced ultrasound for thermal ablation of hepatocellular carcinoma—a prospective randomized controlled trial[J]. Int J Hyperthermia, 2019, 36(1):1207-1215.
- [11] Meloni MF, Francica G, Chiang J, et al. Use of contrast-enhanced ultrasound in ablation therapy of HCC: planning, guiding, and assessing treatment response[J]. J Ultrasound Med, 2021, 40(5):879-894.
- [12] Hai Y, Savsani E, Chong W, et al. Meta-analysis and systematic review of contrast-enhanced ultrasound in evaluating the treatment response after locoregional therapy of hepatocellular carcinoma[J]. Abdom Radiol(NY), 2021, 46(11):5162-5179.
- [13] 吴晓贝, 李开艳, 罗鸿昌, 等. 影像融合超声造影对常规超声难以显示的 $\leq 2$  cm 肝局灶性病变的诊断价值[J]. 中华超声影像学杂志, 2018, 27(10):860-864.

(收稿日期:2023-05-25)

## • 病例报道 •

## Intraoperative ultrasonic diagnosis of a foreign body following cholangiojejunostomy: a case report

### 术中超声诊断胆肠吻合术后异物 1 例

张 婷 钟晓绯

[中图法分类号]R445.1

[文献标识码]B

患者男, 56 岁。3 周前于外院行腹部超声及腹部 MRI 提示: 肝左叶萎缩, 左肝内胆管结石伴胆管扩张、胆管炎, 为进一步诊治遂来我院就诊。一般情况良好, 自述消瘦, 偶有轻度腹部不适, 无畏寒、发热、恶心、呕吐等不适, 否认肝炎、结核或其他传染病史, 无外伤史, 20 年前于外院行开腹胆囊切除术, 8 年前于外院行胆肠吻合术。我院上腹部平扫及增强 MRI 提示: 肝左外叶萎缩; 左肝管、肝左外叶胆管结石伴明显扩张, 并未提示胆肠吻合口处异常。遂行左半肝切除术及术中胆道镜取石, 术中超声检查: 左肝内胆管扩张, 最大管径约 1.2 cm, 多个节段内可见铸状强回声伴声影, 肝内胆管右后支扩张, 最大管径约 0.7 cm, 内见稍强回声充填(疑似胆泥, 后经术中胆道镜证实), 肝门部及肝外胆管管壁增厚(考虑胆道炎性所致); 于

胆肠吻合口处及肝门部胆管内见长约 2.0 cm 线状强回声, 表面光滑, 无明显声影。见图 1。术中超声提示: 异物及结石。术后于胆肠吻合口处取出长约 2.0 cm 黑褐色异物, 质硬有韧性。见图 2。

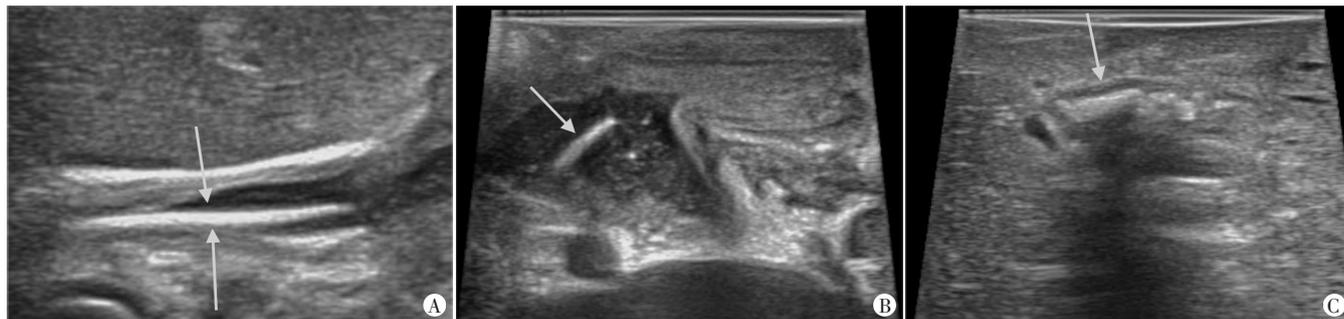
讨论: 医源性异物通常是由医务人员在临床工作中不可抗拒的某些因素造成, 这类异物可能导致患者发生各种并发症, 早期诊断和治疗有利于患者康复。X 线、CT 和 MRI 均为诊断人体异物的常用影像学方法, 其中超声联合 CT 是目前确诊消化道腔内外异物及并发症类型的首选方法<sup>[1]</sup>。但经腹超声检查受胃肠道气体的混响伪像干扰, 易漏、误诊; MRI 对于金属类异物检查存在局限性, 常表现为低信号或无信号。术中超声可直接将探头置于肝外胆管、十二指肠及胰头前方, 不易受含气肠

(下转第 109 页)

- 频消融治疗的可行性及安全性分析[J]. 中华普通外科杂志, 2019, 34(7): 572-575.
- [5] 《原发性肝癌诊疗规范(2019年版)》编写专家委员会. 原发性肝癌诊疗规范(2019年版)[J]. 中国临床医学, 2020, 27(1): 140-156.
- [6] 罗丽萍, 颜荣华, 李凯, 等. 超声融合成像技术辅助 3~5 cm 肝癌热消融治疗的价值[J]. 中华超声影像学杂志, 2019, 28(4): 318-322.
- [7] 段文斌, 薛蓉, 王子承, 等. 术中 Sonazoid 超声造影在特殊部位肝细胞癌经腹腔镜微波消融中的应用价值[J]. 中国普通外科杂志, 2022, 31(7): 880-889.
- [8] Zhai HY, Liang P, Yu J, et al. Comparison of Sonazoid and SonoVue in the diagnosis of focal liver lesions: a preliminary study[J]. J Ultrasound Med, 2019, 38(9): 2417-2425.
- [9] Kim PN, Choi D, Rhim H, et al. Planning ultrasound for percutaneous radiofrequency ablation to treat small( $\leq 3$  cm) hepatocellular carcinomas detected on computed tomography or magnetic resonance imaging: a multicenter prospective study to assess factors affecting ultrasound visibility[J]. J Vasc Interv Radiol, 2012, 23(5): 627-634.
- [10] 黄斌, 荀运浩, 刘德林, 等. 特殊部位原发性肝癌经皮微波消融临床观察[J]. 浙江临床医学, 2017, 19(6): 1019-1020, 1023.
- [11] Lee JY, Minami Y, Choi BI, et al. The AFSUMB Consensus Statements and Recommendations for the Clinical Practice of Contrast-enhanced Ultrasound using Sonazoid [J]. Ultrasonography, 2020, 39(3): 191-220.
- [12] 蔺雨萱, 崔立刚. 经静脉 Sonazoid 超声造影临床应用进展[J]. 中华医学超声杂志(电子版), 2022, 19(8): 847-850.
- [13] Kudo M. Defect reperfusion imaging with Sonazoid: a breakthrough in hepatocellular carcinoma[J]. Liver Cancer, 2016, 5(11): 1-7.
- [14] Dohmen T, Kataoka E, Yamada I, et al. Efficacy of contrast-enhanced ultrasonography in radiofrequency ablation for hepatocellular carcinoma[J]. Intern Med, 2012, 51(1): 1-7.
- [15] Park HS, Kim YJ, Yu MH, et al. Real-time contrast-enhanced sonographically guided biopsy or radiofrequency ablation of focal liver lesions using perflubrotane microbubbles (Sonazoid): value of Kupffer-phase imaging [J]. J Ultrasound Med, 2015, 34(3): 411-421.
- [16] Zheng Z, Xie W, Tian J, et al. Utility of Sonazoid-enhanced ultrasound for the macroscopic classification of hepatocellular carcinoma: a Meta-analysis [J]. Ultrasound Med Biol, 2022, 48(11): 2165-2173.
- [17] Maruyama H, Sekimoto T, Yokosuka O. Role of contrast-enhanced ultrasonography with Sonazoid for hepatocellular carcinoma: evidence from a 10-year experience [J]. J Gastroenterol, 2016, 51(5): 421-433.
- [18] Barr RG, Huang P, Luo Y, et al. Contrast-enhanced ultrasound imaging of the liver: a review of the clinical evidence for SonoVue and Sonazoid [J]. Abdom Radiol (NY), 2020, 45(11): 3779-3788.

(收稿日期: 2023-04-13)

(上接第 104 页)



A、B: 于胆肠吻合口处见一长约 2.0 cm 线状强回声(箭头示), 表面光滑, 无明显声影; C: 箭头示左肝内胆管结石

图 1 术中超声图像



图 2 术后于胆肠吻合口处取出长约 2.0 cm 黑褐色异物(箭头示), 质硬有韧性

祥和肥胖等因素的干扰, 图像分辨率较高, 更易发现异常的强回声病变, 本例患者术中超声表现为线状强回声, 表面光滑, 无

明显声影, 超声提示异物, 分析原因可能为既往胆肠吻合术残留所致。有文献<sup>[2]</sup>报道胃肠道内尖锐的异物会刺破肠壁形成肉芽肿、脓肿或损伤周围脏器。本例患者于术中超声常规检查偶然发现胆肠吻合口残留金属异物, 并协助外科医师及时取出, 避免患者因异物长期存留术区引发的不良反应。可见, 术中超声是一种较好的床旁影像学检查方法, 能提供较小异物的影像学信息, 有助于外科手术进程。

#### 参考文献

- [1] 金美英, 袁彩娣, 章萍. 超声联合 CT 在成人消化道异物及其并发症诊断中的应用价值[J]. 现代实用医学, 2019, 31(6): 806-807, 850.
- [2] 冯慧俊, 魏伟, 朱慧玲. 超声诊断铅笔异物致乙状结肠穿孔 1 例[J]. 临床超声医学杂志, 2022, 24(5): 381.

(收稿日期: 2023-02-15)